
STM32
CubeMX

1. Description

1.1. Project

Project Name	Vortex RGB driver STM32G431RBT6
Board Name	custom
Generated with:	STM32CubeMX 6.16.0
Date	01/22/2026

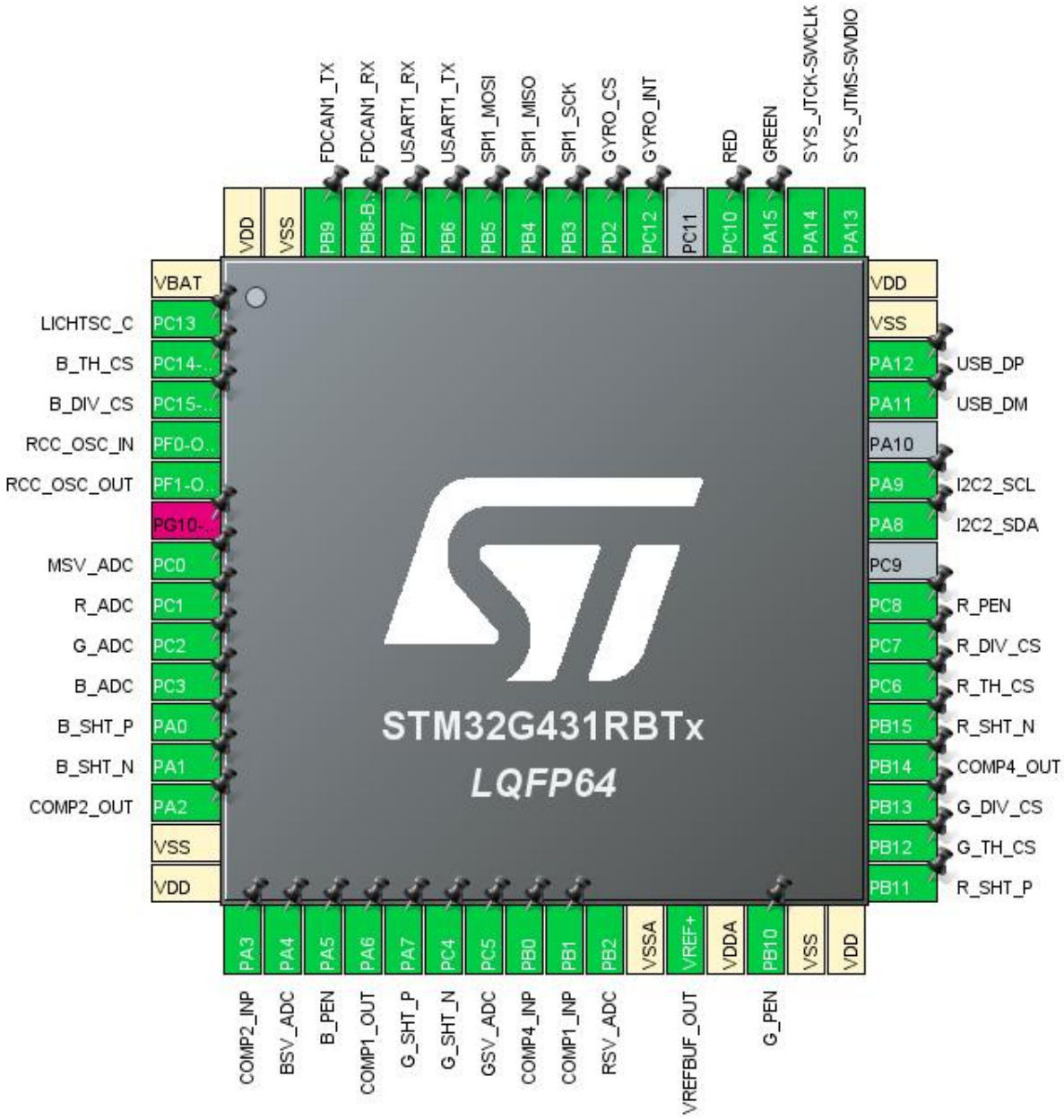
1.2. MCU

MCU Series	STM32G4
MCU Line	STM32G4x1
MCU name	STM32G431RBTx
MCU Package	LQFP64
MCU Pin number	64

1.3. Core(s) information

Core(s)	ARM Cortex-M4

2. Pinout Configuration



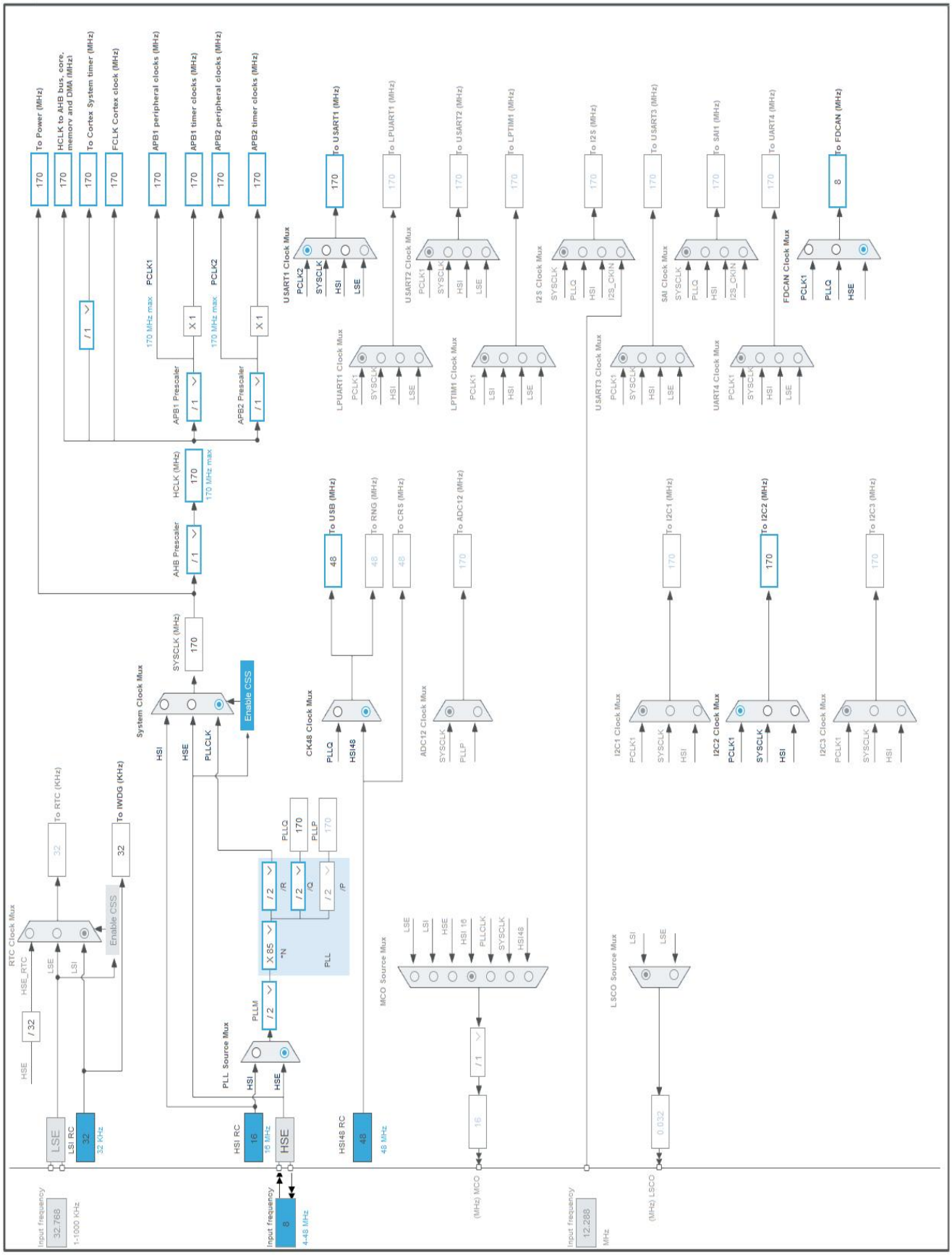
3. Pins Configuration

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
2	PC13	I/O	GPIO_EXTI13	LICHTSC_C
3	PC14-OSC32_IN *	I/O	GPIO_Output	B_TH_CS
4	PC15-OSC32_OUT *	I/O	GPIO_Output	B_DIV_CS
5	PF0-OSC_IN	I/O	RCC_OSC_IN	
6	PF1-OSC_OUT	I/O	RCC_OSC_OUT	
7	PG10-NRST	I/O		
8	PC0	I/O	ADC1_IN6	MSV_ADC
9	PC1	I/O	ADC1_IN7	R_ADC
10	PC2	I/O	ADC1_IN8	G_ADC
11	PC3	I/O	ADC1_IN9	B_ADC
12	PA0	I/O	ADC1_IN1	B_SHT_P
13	PA1	I/O	ADC1_IN2	B_SHT_N
14	PA2	I/O	COMP2_OUT	
15	VSS	Power		
16	VDD	Power		
17	PA3	I/O	COMP2_INP	
18	PA4	I/O	ADC2_IN17	BSV_ADC
19	PA5 *	I/O	GPIO_Output	B_PEN
20	PA6	I/O	COMP1_OUT	
21	PA7	I/O	ADC2_IN4	G_SHT_P
22	PC4	I/O	ADC2_IN5	G_SHT_N
23	PC5	I/O	ADC2_IN11	GSV_ADC
24	PB0	I/O	COMP4_INP	
25	PB1	I/O	COMP1_INP	
26	PB2	I/O	ADC2_IN12	RSV_ADC
27	VSSA	Power		
28	VREF+	MonoIO	VREFBUF_OUT	
29	VDDA	Power		
30	PB10 *	I/O	GPIO_Output	G_PEN
31	VSS	Power		
32	VDD	Power		
33	PB11	I/O	ADC2_IN14	R_SHT_P
34	PB12 *	I/O	GPIO_Output	G_TH_CS
35	PB13 *	I/O	GPIO_Output	G_DIV_CS
36	PB14	I/O	COMP4_OUT	

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
37	PB15	I/O	ADC2_IN15	R_SHT_N
38	PC6 *	I/O	GPIO_Output	R_TH_CS
39	PC7 *	I/O	GPIO_Output	R_DIV_CS
40	PC8 *	I/O	GPIO_Output	R_PEN
42	PA8	I/O	I2C2_SDA	
43	PA9	I/O	I2C2_SCL	
45	PA11	I/O	USB_DM	
46	PA12	I/O	USB_DP	
47	VSS	Power		
48	VDD	Power		
49	PA13	I/O	SYS_JTMS-SWDIO	
50	PA14	I/O	SYS_JTCK-SWCLK	
51	PA15 *	I/O	GPIO_Output	GREEN
52	PC10 *	I/O	GPIO_Output	RED
54	PC12	I/O	GPIO_EXTI12	GYRO_INT
55	PD2 *	I/O	GPIO_Output	GYRO_CS
56	PB3	I/O	SPI1_SCK	
57	PB4	I/O	SPI1_MISO	
58	PB5	I/O	SPI1_MOSI	
59	PB6	I/O	USART1_TX	
60	PB7	I/O	USART1_RX	
61	PB8-BOOT0	I/O	FDCAN1_RX	
62	PB9	I/O	FDCAN1_TX	
63	VSS	Power		
64	VDD	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration



1. Power Consumption Calculator report

1.1. Microcontroller Selection

Series	STM32G4
Line	STM32G4x1
MCU	STM32G431RBTx
Datasheet	DS12589_Rev0

1.2. Parameter Selection

Temperature	25
Vdd	3.0

1.3. Battery Selection

Battery	Li-SOCL2(A3400)
Capacity	3400.0 mAh
Self Discharge	0.08 %/month
Nominal Voltage	3.6 V
Max Cont Current	100.0 mA
Max Pulse Current	200.0 mA
Cells in series	1
Cells in parallel	1

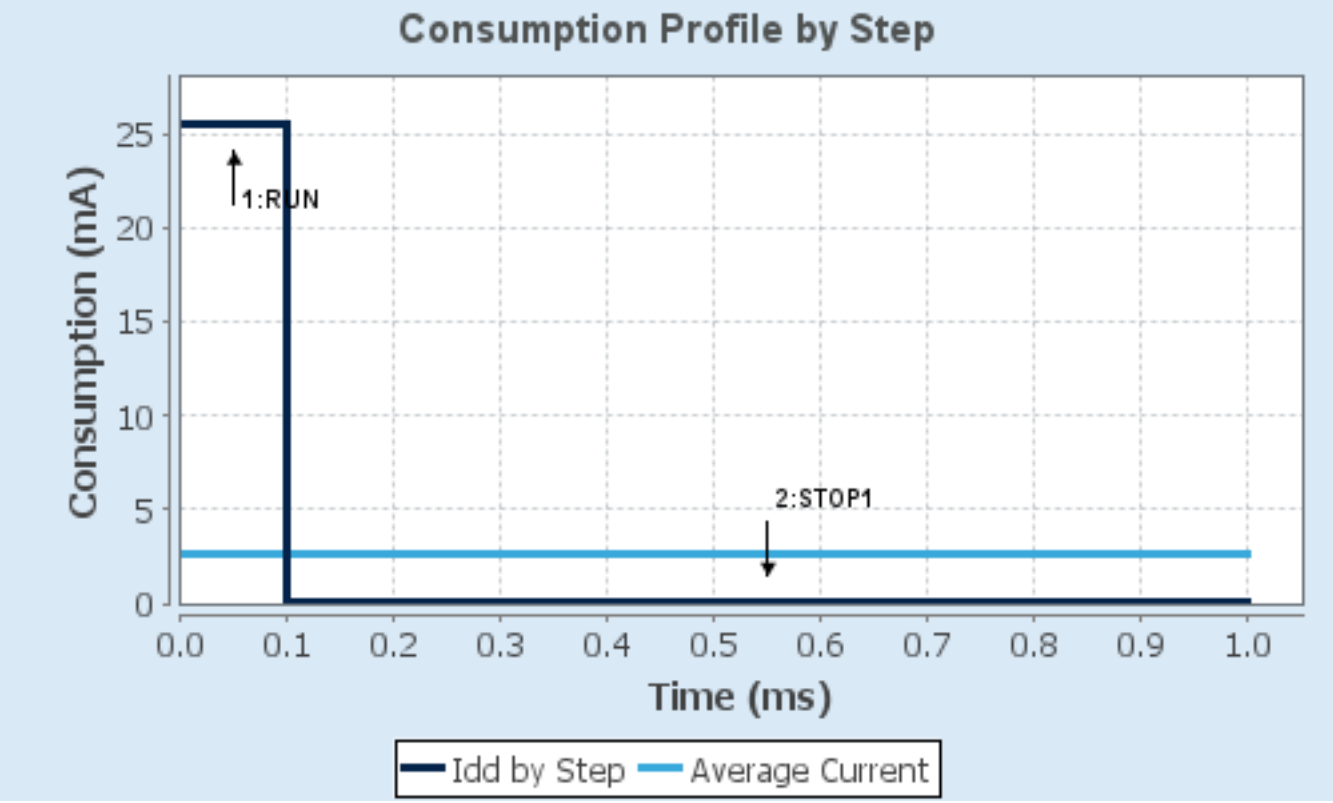
1.4. Sequence

Step	Step1	Step2
Mode	RUN	STOP1
Vdd	3.0	3.0
Voltage Source	Battery	Battery
Range	Range1-Boost	NoRange
Fetch Type	FLASH/ART	NA
CPU Frequency	170 MHz	0 Hz
Clock Configuration	HSE BYP PLL	ALL CLOCKS OFF
Clock Source Frequency	4 MHz	0 Hz
Peripherals		
Additional Cons.	0 mA	0 mA
Average Current	25.5 mA	59 µA
Duration	0.1 ms	0.9 ms
DMIPS	213.0	0.0
Ta Max	125.03	129.99
Category	In DS Table	In DS Table

1.5. Results

Sequence Time	1 ms	Average Current	2.6 mA
Battery Life	1 month, 23 days, 22 hours	Average DMIPS	212.5 DMIPS

1.6. Chart


Consumption Profile by Step
Consumption (mA)
25
20
15
10
5
0
1:RUN
2:STOP1
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Time (ms)
Idd by Step
Average Current

2. Software Project

2.1. Project Settings

Name	Value
Project Name	Vortex RGB driver STM32G431RBT6
Project Folder	D:\Nextcloud\Arctos\Arctos\Optik\STM32CubeIDE\workspace_1.16.1\Vortex RGB
Toolchain / IDE	STM32CubeIDE
Firmware Package Name and Version	STM32Cube FW_G4 V1.6.1
Application Structure	Advanced
Generate Under Root	Yes
Do not generate the main()	No
Minimum Heap Size	0x200
Minimum Stack Size	0x400

2.2. Code Generation Settings

Name	Value
STM32Cube MCU packages and embedded software	Copy only the necessary library files
Generate peripheral initialization as a pair of '.c/.h' files	No
Backup previously generated files when re-generating	No
Keep User Code when re-generating	Yes
Delete previously generated files when not re-generated	Yes
Set all free pins as analog (to optimize the power consumption)	No
Enable Full Assert	No

2.3. Advanced Settings - Generated Function Calls

Rank	Function Name	Peripheral Instance Name
1	SystemClock_Config	RCC
2	MX_GPIO_Init	GPIO
3	MX_DMA_Init	DMA
4	MX_ADC1_Init	ADC1
5	MX_ADC2_Init	ADC2
6	MX_COMP1_Init	COMP1
7	MX_COMP2_Init	COMP2
8	MX_COMP4_Init	COMP4
9	MX_DAC1_Init	DAC1
10	MX_DAC3_Init	DAC3
11	MX_FDCAN1_Init	FDCAN1

Rank	Function Name	Peripheral Instance Name
12	MX_I2C2_Init	I2C2
13	MX_USART1_UART_Init	USART1
14	MX_USB_Device_Init	USB_DEVICE
15	MX_IWDG_Init	IWDG
16	MX_CRC_Init	CRC

3. Peripherals and Middlewares Configuration

3.1. ADC1

IN1: IN1 Differential

IN6: IN6 Single-ended

IN7: IN7 Single-ended

IN8: IN8 Single-ended

IN9: IN9 Single-ended

mode: Temperature Sensor Channel

mode: Vbat Channel

3.1.1. Parameter Settings:

ADCs_Common_Settings:

Mode	Independent mode

ADC_Settings:

Clock Prescaler	Synchronous clock mode divided by 4
Resolution	ADC 12-bit resolution
Data Alignment	Right alignment
Gain Compensation	0
Scan Conversion Mode	Enabled
End Of Conversion Selection	End of single conversion
Low Power Auto Wait	Disabled
Continuous Conversion Mode	Disabled
Discontinuous Conversion Mode	Disabled
DMA Continuous Requests	**Enabled ***
Overrun behaviour	Overrun data preserved

ADC_Regular_ConversionMode:

Enable Regular Conversions	Enable
Enable Regular Oversampling	Disable
Number Of Conversion	**7 ***
External Trigger Conversion Source	Regular Conversion launched by software
External Trigger Conversion Edge	None
Rank	1
Channel	Channel 1
Sampling Time	**247.5 Cycles ***
Offset Number	No offset
Rank	**2 ***
Channel	**Channel 6 ***
Sampling Time	**247.5 Cycles ***

Offset Number	No offset
Rank	**3 ***
Channel	**Channel 7 ***
Sampling Time	**247.5 Cycles ***
Offset Number	No offset
Rank	**4 ***
Channel	**Channel 8 ***
Sampling Time	**247.5 Cycles ***
Offset Number	No offset
Rank	**5 ***
Channel	**Channel 9 ***
Sampling Time	**247.5 Cycles ***
Offset Number	No offset
Rank	**6 ***
Channel	**Channel Temperature Sensor ***
Sampling Time	**247.5 Cycles ***
Offset Number	No offset
Rank	**7 ***
Channel	**Channel Vbat ***
Sampling Time	**247.5 Cycles ***
Offset Number	No offset
ADC_Injected_ConversionMode:	
Enable Injected Conversions	Disable
Analog Watchdog 1:	
Enable Analog WatchDog1 Mode	false
Analog Watchdog 2:	
Enable Analog WatchDog2 Mode	false
Analog Watchdog 3:	
Enable Analog WatchDog3 Mode	false

3.2. ADC2

IN4: IN4 Differential

IN11: IN11 Single-ended

IN12: IN12 Single-ended

IN14: IN14 Differential

mode: IN17 Single-ended

3.2.1. Parameter Settings:

ADCs_Common_Settings:

Mode	Independent mode

ADC_Settings:

Clock Prescaler	Synchronous clock mode divided by 4
Resolution	ADC 12-bit resolution
Data Alignment	Right alignment
Gain Compensation	0
Scan Conversion Mode	Enabled
End Of Conversion Selection	End of single conversion
Low Power Auto Wait	Disabled
Continuous Conversion Mode	Disabled
Discontinuous Conversion Mode	Disabled
DMA Continuous Requests	Disabled
Overrun behaviour	Overrun data preserved

ADC_Regular_ConversionMode:

Enable Regular Conversions	Enable
Enable Regular Oversampling	Disable
Number Of Conversion	**5 ***
External Trigger Conversion Source	Regular Conversion launched by software
External Trigger Conversion Edge	None
Rank	1
Channel	Channel 4
Sampling Time	**247.5 Cycles ***
Offset Number	No offset
Rank	**2 ***
Channel	**Channel 11 ***
Sampling Time	**247.5 Cycles ***
Offset Number	No offset
Rank	**3 ***
Channel	**Channel 12 ***
Sampling Time	**247.5 Cycles ***
Offset Number	No offset
Rank	**4 ***
Channel	**Channel 14 ***
Sampling Time	**247.5 Cycles ***
Offset Number	No offset
Rank	

	5 *
Channel	**Channel 17 ***
Sampling Time	**247.5 Cycles ***
Offset Number	No offset
ADC_Injected_ConversionMode:	
Enable Injected Conversions	Disable
Analog Watchdog 1:	
Enable Analog WatchDog1 Mode	false
Analog Watchdog 2:	
Enable Analog WatchDog2 Mode	false
Analog Watchdog 3:	
Enable Analog WatchDog3 Mode	false

3.3. COMP1

mode: Input [+]

Input [-]: DAC1 OUT1

mode: ExternalOutput

3.3.1. Parameter Settings:

Basic Parameters:	
Trigger Mode	None
Hysteresis Level	None
Output Configuration:	
Blanking Source	None
Output Polarity	COMP output on GPIO isn't inverted

3.4. COMP2

mode: Input [+]

Input [-]: DAC1 OUT2

mode: ExternalOutput

3.4.1. Parameter Settings:

Basic Parameters:	
Trigger Mode	None
Hysteresis Level	None
Output Configuration:	

Blanking Source	None
Output Polarity	COMP output on GPIO isn't inverted

3.5. COMP4

mode: Input [+]

Input [-]: DAC3 OUT2

mode: ExternalOutput

3.5.1. Parameter Settings:

Basic Parameters:

Trigger Mode	None
Hysteresis Level	None

Output Configuration:

Blanking Source	None
Output Polarity	COMP output on GPIO isn't inverted

3.6. CRC

mode: Activated

3.6.1. Parameter Settings:

Basic Parameters:

Default Polynomial State	Enable
Default Init Value State	Enable

Advanced Parameters:

Input Data Inversion Mode	None
Output Data Inversion Mode	Disable
Input Data Format	Bytes

3.7. DAC1

OUT1 mode: OUT1 Connected to on chip-peripherals only

OUT2 mode: OUT2 Connected to on chip-peripherals only

3.7.1. Parameter Settings:

DAC Out1 Settings:

Mode selected	Normal Mode

Output Buffer	Disable
DAC High Frequency	Mode Automatic
DMA Double Data	Disable
Signed Format	Disable
Trigger	None
Trigger2	None
User Trimming	Factory trimming

DAC Out2 Settings:

Mode selected	Normal Mode
Output Buffer	Disable
DAC High Frequency	Mode Automatic
DMA Double Data	Disable
Signed Format	Disable
Trigger	None
Trigger2	None
User Trimming	Factory trimming

3.8. DAC3

mode: OUT2 mode

3.8.1. Parameter Settings:

DAC Out2 Settings:

Mode selected	Normal Mode
Output Buffer	Disable
DAC High Frequency	Mode Automatic
DMA Double Data	Disable
Signed Format	Disable
Trigger	None
Trigger2	None
User Trimming	Factory trimming

3.9. FDCAN1

mode: Activated

3.9.1. Parameter Settings:

Basic Parameters:

Clock Divider	Divide kernel clock by 1
Frame Format	**FD mode without BitRate Switching ***

Mode	Normal mode
Auto Retransmission	Disable
Transmit Pause	Disable
Protocol Exception	Disable
Nominal Sync Jump Width	1
Data Prescaler	1
Data Sync Jump Width	1
Data Time Seg1	1
Data Time Seg2	1
Std Filters Nbr	0
Ext Filters Nbr	0
Tx Fifo Queue Mode	FIFO mode

Bit Timings Parameters:

Nominal Prescaler	**4 ***
Nominal Time Quantum	**500.0 ***
Nominal Time Seg1	**5 ***
Nominal Time Seg2	**2 ***
Nominal Time for one Bit	**4000 ***
Nominal Baud Rate	**250000 ***

3.10. I2C2

I2C: I2C

3.10.1. Parameter Settings:

Timing configuration:

Custom Timing	Disabled
I2C Speed Mode	Standard Mode
I2C Speed Frequency (KHz)	100
Rise Time (ns)	100
Fall Time (ns)	100
Coefficient of Digital Filter	0
Analog Filter	Enabled
Timing	**0x40B285C2 ***

Slave Features:

Clock No Stretch Mode	Disabled
General Call Address Detection	Disabled
Primary Address Length selection	7-bit
Dual Address Acknowledged	Disabled
Primary slave address	0

3.11. IWDG

mode: Activated

3.11.1. Parameter Settings:

Watchdog Clocking:

IWDG counter clock prescaler	**32 ***
IWDG window value	4095
IWDG down-counter reload value	**2000 ***

3.12. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

3.12.1. Parameter Settings:

System Parameters:

VDD voltage (V)	3.3
Instruction Cache	Enabled
Prefetch Buffer	Disabled
Data Cache	Enabled
Flash Latency(WS)	4 WS (5 CPU cycle)

RCC Parameters:

HSI Calibration Value	64
HSE Startup Timout Value (ms)	100
LSE Startup Timout Value (ms)	5000

Power Parameters:

Power Regulator Voltage Scale	Power Regulator Voltage Scale 1 boost

Peripherals Clock Configuration:

Generate the peripherals clock configuration	TRUE

3.13. SPI1

Mode: Full-Duplex Master

3.13.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola

Data Size	**8 Bits ***
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	**32 ***
Baud Rate	**5.3125 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSSP Mode	Enabled
NSS Signal Type	Software

3.14. SYS

Debug: Serial Wire

VREFBUF Mode: Internal voltage reference

Timebase Source: SysTick

mode: save power of non-active UCPD - deactive Dead Battery pull-up

3.14.1. Parameter Settings:

Voltage_Reference_Buffer_Settings:

Trimming Mode	Factory Trimming
Internal Voltage reference scale	SCALE 0: around 2.048 V

3.15. USART1

Mode: Asynchronous

3.15.1. Parameter Settings:

Basic Parameters:

Baud Rate	115200
Word Length	8 Bits (including Parity)
Parity	None
Stop Bits	1

Advanced Parameters:

Data Direction	Receive and Transmit
Over Sampling	16 Samples
Single Sample	Disable

ClockPrescaler	1
Fifo Mode	Disable
Txfifo Threshold	1 eighth full configuration
Rxfifo Threshold	1 eighth full configuration

Advanced Features:

Auto Baudrate	Disable
TX Pin Active Level Inversion	Disable
RX Pin Active Level Inversion	Disable
Data Inversion	Disable
TX and RX Pins Swapping	Disable
Overrun	Enable
DMA on RX Error	Enable
MSB First	Disable

3.16. USB

mode: Device (FS)

3.16.1. Parameter Settings:

Basic Parameters:

Speed	Full Speed 12MBit/s
Physical interface	Internal Phy
Sof Enable	Disabled

Power Parameters:

Low Power	Disabled
Link Power Management	Disabled
Battery Charging	Disabled

3.17. STMicroelectronics.X-CUBE-MEMS1.12.0.0

mode: BoardOoPartJjAccGyr

mode: BoardOoSupportJjCustom

3.17.1. Platform Settings:

LSM6DSOX_CS	PD2
LSM6DSOX BUS IO driver	SPI1

3.18. USB_DEVICE

Class For FS IP: Communication Device Class (Virtual Port Com)

3.18.1. Parameter Settings:

Basic Parameters:

USBD_MAX_NUM_INTERFACES (Maximum number of supported interfaces)	1
USBD_MAX_NUM_CONFIGURATION (Maximum number of supported configuration)	1
USBD_MAX_STR_DESC_SIZ (Maximum size for the string descriptors)	512
USBD_SELF_POWERED (Enabled self power)	Enabled
USBD_DEBUG_LEVEL (USBD Debug Level)	0: No debug message
USBD_LPM_ENABLED (Link Power Management)	1: Link Power Management supported

Class Parameters:

USB CDC Rx Buffer Size	1024
USB CDC Tx Buffer Size	1024

3.18.2. Device Descriptor:

Device Descriptor:

VID (Vendor IDentifier)	1155
LANGID_STRING (Language Identifier)	English(United States)
MANUFACTURER_STRING (Manufacturer Identifier)	STMicroelectronics

Device Descriptor FS:

PID (Product IDentifier)	22336
PRODUCT_STRING (Product Identifier)	STM32 Virtual ComPort
CONFIGURATION_STRING (Configuration Identifier)	CDC Config
INTERFACE_STRING (Interface Identifier)	CDC Interface

*** User modified value**

4. System Configuration

4.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
ADC1	PC0	ADC1_IN6	Analog mode	No pull-up and no pull-down	n/a	MSV_ADC
	PC1	ADC1_IN7	Analog mode	No pull-up and no pull-down	n/a	R_ADC
	PC2	ADC1_IN8	Analog mode	No pull-up and no pull-down	n/a	G_ADC
	PC3	ADC1_IN9	Analog mode	No pull-up and no pull-down	n/a	B_ADC
	PA0	ADC1_IN1	Analog mode	No pull-up and no pull-down	n/a	B_SHT_P
	PA1	ADC1_IN2	Analog mode	No pull-up and no pull-down	n/a	B_SHT_N
ADC2	PA4	ADC2_IN17	Analog mode	No pull-up and no pull-down	n/a	BSV_ADC
	PA7	ADC2_IN4	Analog mode	No pull-up and no pull-down	n/a	G_SHT_P
	PC4	ADC2_IN5	Analog mode	No pull-up and no pull-down	n/a	G_SHT_N
	PC5	ADC2_IN11	Analog mode	No pull-up and no pull-down	n/a	GSV_ADC
	PB2	ADC2_IN12	Analog mode	No pull-up and no pull-down	n/a	RSV_ADC
	PB11	ADC2_IN14	Analog mode	No pull-up and no pull-down	n/a	R_SHT_P
	PB15	ADC2_IN15	Analog mode	No pull-up and no pull-down	n/a	R_SHT_N
COMP1	PA6	COMP1_OUT	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PB1	COMP1_INP	Analog mode	No pull-up and no pull-down	n/a	
COMP2	PA2	COMP2_OUT	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PA3	COMP2_INP	Analog mode	No pull-up and no pull-down	n/a	
COMP4	PB0	COMP4_INP	Analog mode	No pull-up and no pull-down	n/a	
	PB14	COMP4_OUT	Alternate Function Push Pull	No pull-up and no pull-down	Low	
FDCAN1	PB8-BOOT0	FDCAN1_RX	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PB9	FDCAN1_TX	Alternate Function Push Pull	No pull-up and no pull-down	Low	
I2C2	PA8	I2C2_SDA	Alternate Function Open Drain	No pull-up and no pull-down	Low	
	PA9	I2C2_SCL	Alternate Function Open Drain	No pull-up and no pull-down	Low	
RCC	PF0-OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
	PF1-OSC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
SPI1	PB3	SPI1_SCK	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PB4	SPI1_MISO	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PB5	SPI1_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	Low	
SYS	VREF+	VREFBUF_OUT	n/a	n/a	n/a	
	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
USART1	PB6	USART1_TX	Alternate Function Push Pull	No pull-up and no pull-down	Low	

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PB7	USART1_RX	Alternate Function Push Pull	No pull-up and no pull-down	Low	
USB	PA11	USB_DM	n/a	n/a	n/a	
	PA12	USB_DP	n/a	n/a	n/a	
GPIO	PC13	GPIO_EXTI13	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	LICHTSC_C
	PC14-OSC32_IN	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	B_TH_CS
	PC15-OSC32_OUT	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	B_DIV_CS
	PA5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	B_PEN
	PB10	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	G_PEN
	PB12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	G_TH_CS
	PB13	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	G_DIV_CS
	PC6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	R_TH_CS
	PC7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	R_DIV_CS
	PC8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	R_PEN
	PA15	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	GREEN
	PC10	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	RED
	PC12	GPIO_EXTI12	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	GYRO_INT
	PD2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	GYRO_CS

4.2. DMA configuration

DMA request	Stream	Direction	Priority
ADC1	DMA1_Channel1	Peripheral To Memory	Low
ADC2	DMA1_Channel2	Peripheral To Memory	Low

ADC1: DMA1_Channel1 DMA request Settings:

Mode:	**Circular ***
Peripheral Increment:	Disable
Memory Increment:	**Enable ***
Peripheral Data Width:	**Word ***
Memory Data Width:	**Word ***

ADC2: DMA1_Channel2 DMA request Settings:

Mode:	**Circular ***
Peripheral Increment:	Disable
Memory Increment:	**Enable ***
Peripheral Data Width:	**Word ***
Memory Data Width:	**Word ***

4.3. NVIC configuration

4.3.1. NVIC

Interrupt Table	Enable	Preenmption Priority	SubPriority
Non maskable interrupt	true	0	0
Hard fault interrupt	true	0	0
Memory management fault	true	0	0
Prefetch fault, memory access fault	true	0	0
Undefined instruction or illegal state	true	0	0
System service call via SWI instruction	true	0	0
Debug monitor	true	0	0
Pendable request for system service	true	0	0
System tick timer	true	15	0
DMA1 channel1 global interrupt	true	0	0
DMA1 channel2 global interrupt	true	0	0
USB low priority interrupt remap	true	0	0
SPI1 global interrupt	true	0	0
PVD/PVM1/PVM2/PVM3/PVM4 interrupts through EXTI lines 16/38/39/40/41	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC1 and ADC2 global interrupt	unused		
USB high priority interrupt remap	unused		
FDCAN1 interrupt 0	unused		
FDCAN1 interrupt 1	unused		
I2C2 event interrupt / I2C2 wake-up interrupt through EXTI line 24	unused		
I2C2 error interrupt	unused		
USART1 global interrupt / USART1 wake-up interrupt through EXTI line 25	unused		
EXTI line[15:10] interrupts	unused		
TIM6 global interrupt, DAC1 and DAC3 channel underrun error interrupts	unused		
COMP1, COMP2 and COMP3 interrupts through EXTI lines 21, 22 and 29	unused		
COMP4 interrupt through EXTI line 30	unused		
FPU global interrupt	unused		

4.3.2. NVIC Code generation

Enabled interrupt Table	Select for init sequence ordering	Generate IRQ handler	Call HAL handler
Non maskable interrupt	false	true	false

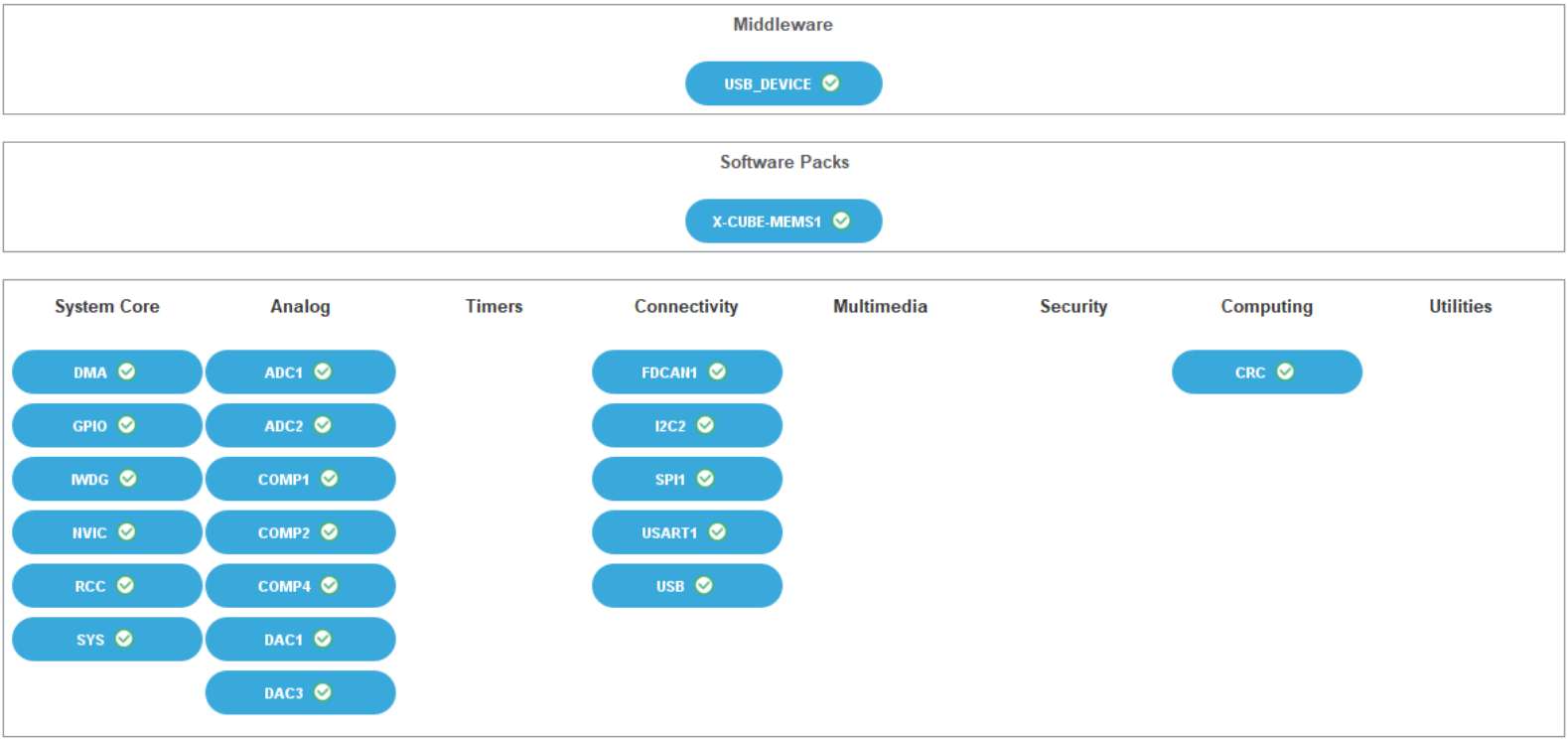
Enabled interrupt Table	Select for init sequence ordering	Generate IRQ handler	Call HAL handler
Hard fault interrupt	false	true	false
Memory management fault	false	true	false
Prefetch fault, memory access fault	false	true	false
Undefined instruction or illegal state	false	true	false
System service call via SWI instruction	false	true	false
Debug monitor	false	true	false
Pendable request for system service	false	true	false
System tick timer	false	true	true
DMA1 channel1 global interrupt	false	true	true
DMA1 channel2 global interrupt	false	true	true
USB low priority interrupt remap	false	true	true
SPI1 global interrupt	false	true	true

*** User modified value**

5. System Views

5.1. Category view

5.1.1. Current



6. Software Pack Report

6.1. Software Pack selected

Vendor	Name	Version	Component
STMicroelectronics	X-CUBE-MEMS1	12.0.0	Class : Board Part Group : AccGyr SubGroup : LSM6DSOX Variant : SPI Version : 1.10.0 Class : Board Support Group : Custom SubGroup : MOTION_SENSOR Version : 12.0.0 Class : Sensors Group : STM32_MotionFX_Library SubGroup : Core Version : 2.10.0 Class : Sensors Group : STM32_MotionGC_Library SubGroup : Core Version : 2.7.0 Class : Sensors Group : STM32_MotionAC_Library SubGroup : Core

			Version : 2.6.2

7. Docs & Resources

Type	Link
BSDL files	https://www.st.com/resource/en/bsdl_model/stm32g4_bsdl.zip
IBIS models	https://www.st.com/resource/en/ibis_model/stm32g4_ibis.zip
System View Description	https://www.st.com/resource/en/svd/stm32g4_svd.zip
Presentations	https://www.st.com/resource/en/product_presentation/stm32-stm8_embedded_software_solutions.pdf
Presentations	https://www.st.com/resource/en/product_presentation/stm32_eval-tools_portfolio.pdf
Presentations	https://www.st.com/resource/en/product_presentation/stm32_stm8_functional-safety-packages.pdf
Presentations	https://www.st.com/resource/en/product_presentation/stm32-usb-c-pd-solutions-presentation.pdf
Presentations	https://www.st.com/resource/en/product_presentation/stm32-stm8_software_development_tools.pdf
Presentations	https://www.st.com/resource/en/product_presentation/microcontrollers-stm32-family-overview.pdf
Presentations	https://www.st.com/resource/en/product_presentation/microcontrollers-stm32g4-series-product-overview.pdf
Brochures	https://www.st.com/resource/en/brochure/products-and-solutions-for-plcs-and-smart-i-os.pdf
Brochures	https://www.st.com/resource/en/brochure/expansion-boards-for-intelligent-power-switches.pdf
Flyers	https://www.st.com/resource/en/flyer/flstm32g4.pdf
Flyers	https://www.st.com/resource/en/flyer/flstm32nucleo.pdf
Flyers	https://www.st.com/resource/en/flyer/flstm32trust.pdf
Flyers	https://www.st.com/resource/en/flyer/fldpstpfc11120.pdf
Security Bulletin	https://www.st.com/resource/en/technical_note/tn1489-security-bulletin-tn1489stpsirt-physical-attacks-on-stm32-and-stm32cube-firmware-stmicroelectronics.pdf

Application Notes	https://www.st.com/resource/en/application_note/an1709-emc-design-guide-for-stm8-stm32-and-legacy-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an3126-audio-and-waveform-generation-using-the-dac-in-stm32-products-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an3155-usart-protocol-used-in-the-stm32-bootloader-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an3156-usb-dfu-protocol-used-in-the-stm32-bootloader-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4221-i2c-protocol-used-in-the-stm32-bootloader-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4232-getting-started-with-analog-comparators-for-stm32f3-series-and-stm32g4-series-devices-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4286-spi-protocol-used-in-the-stm32-bootloader-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4296-use-stm32f3stm32g4-ccm-sram-with-iar-embedded-workbench-keil-mdkarm-stmicroelectronics-stm32cubeide-and-other-gnubased-toolchains-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4655-virtually-increasing-the-number-of-serial-communication-peripherals-in-stm32-applications-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4750-handling-of-soft-errors-in-stm32-applications-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4776-generalpurpose-timer-cookbook-for-stm32-microcontrollers-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4803-highspeed-si-simulations-using-ibis-and-boardlevel-simulations-using-hyperlynx-si-on-stm32-mcus-and-mpus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4989-stm32-microcontroller-debug-toolbox-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5027-interfacing-pdm-

	digital-microphones-using-stm32-mcus-and-mpus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5093-getting-started-with-stm32g4-series--hardware-development-boards-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5306-operational-amplifier-opamp-usage-in-stm32g4-series-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5310-guideline-for-using-analog-features-of-stm32g4-series-versus-stm32f3-series-devices-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5315-stm32cube-firmware-examples-for-stm32g4-series-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5346-stm32g4-adc-use-tips-and-recommendations-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5094-migrating-between-stm32f334303-lines-and-stm32g431xxg474xxg491xx-microcontrollers-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5738-stm32g4-series-lifetime-estimates-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4899-stm32-microcontroller-gpio-hardware-settings-and-lowpower-consumption-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5612-esd-protection-of-stm32-mcus-and-mpus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4991-how-to-wake-up-an-stm32-microcontroller-from-lowpower-mode-with-the-usart-or-the-lpuart-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4838-introduction-to-memory-protection-unit-management-on-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5325-how-to-use-the-cordic-to-perform-mathematical-functions-on-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5225-introduction-to-

	usb-typec-power-delivery-for-stm32-mcus-and-mpus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4894-how-to-use-eeprom-emulation-on-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5537-how-to-use-adc-oversampling-techniques-to-improve-signaltonoise-ratio-on-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5036-guidelines-for-thermal-management-on-stm32-applications-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5405-how-to-use-fdcan-bootloader-protocol-on-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5978-introduction-to-mb1971-llc-hat-12-v-to-75-v1-a-for-f334-g474-nucleo-board-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5690-how-to-use-vrefbuf-peripheral-on-stm32-mcus-and-mpus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4230-introduction-to-random-number-generation-validation-using-the-nist-statistical-test-suite-for-stm32-mcus-and-mpus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an2548-introduction-to-dma-controller-for-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4013-introduction-to-timers-for-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4277-how-to-use-pwm-shutdown-for-motor-control-and-digital-power-conversion-on-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4635-how-to-optimize-lpuart-power-consumption-on-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4759-introduction-to-using-the-hardware-realtime-clock-rtc-and-the-tamper-management-unit-tamp-with-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4908-getting-started-

	with-usart-automatic-baud-rater-detection-for-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5156-introduction-to-security-for-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5224-introduction-to-dmamux-for-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5543-guidelines-for-enhanced-spi-communication-on-stm32-mcus-and-mpus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5348-introduction-to-fdcan-peripherals-for-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/cd00211314-how-to-optimize-the-adc-accuracy-in-the-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an2639-soldering-recommendations-and-package-information-for-leadfree-ecopack2-mcus-and-mpus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4566-how-to-extend-the-dac-performance-on-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5647-the-goertzel-algorithm-to-compute-individual-terms-of-the-discrete-fourier-transform-dft-in-stm32-products-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an2606-introduction-to-system-memory-boot-mode-on-stm32-mcus-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an4435-guidelines-for-obtaining-ulcsaiec-607301603351-class-b-certification-in-any-stm32-application-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an4657-stm32-inapplication-programming-iap-using-the-usart-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an4841-digital-signal-processing-for-stm32-microcontrollers-using-cmsis-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5056-integration-

for related Tools & Software	guide-for-the-xcubesbsfu-stm32cube-expansion-package-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5305-digital-filter-implementation-with-the-fmac-using-stm32cubeg4-mcu-package-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5315-stm32cube-firmware-examples-for-stm32g4-series-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5345-highbrightness-rgb-led-control-using-the-bg474edpow1-discovery-kit-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5360-getting-started-with-projects-based-on-the-stm32mp1-series-in-stm32cubeide-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5361-getting-started-with-projects-based-on-dualcore-stm32h7-microcontrollers-in-stm32cubeide-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5394-getting-started-with-projects-based-on-the-stm32l5-series-in-stm32cubeide-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5418-how-to-build-a-simple-usbpd-sink-application-with-stm32cubemx-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5426-migrating-graphics-middleware-projects-from-stm32cubemx-540-to-stm32cubemx-550-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5464-position-control-of-a-threephase-permanent-magnet-motor-using-xcubemcsdk-or-xcubemcsdkful-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5564-getting-started-with-projects-based-on-dualcore-stm32wl-microcontrollers-in-stm32cubeide-stmicroelectronics.pdf
Application Notes for related Tools	https://www.st.com/resource/en/application_note/an5698-adapting-the-xcubestl-functional-safety-package-for-stm32-iec-61508-compliant-to-

& Software	other-safety-standards-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5731-stm32cubemx-and-stm32cubeide-threadsafe-solution-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5785-boost-voltage-mode-on-bg474edpow1-discovery-kit-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5788-stm32-digital-power-pid-and-iir-filters-for-smps-control-design-and-comparison-on-bg414edpow1-discovery-kit-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an4502-stm32-smbuspmbus-expansion-package-for-stm32cube-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5952-how-to-use-cmake-in-stm32cubeide-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an4635-how-to-optimize-lpuart-power-consumption-on-stm32-mcus-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5054-how-to-perform-secure-programming-using-stm32cubeprogrammer-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5496-guidelines-for-the-buck-voltage-mode-on-the-bg474edpow1-discovery-kit-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5497-introduction-to-the-buck-current-mode-with-the-bg474edpow1-discovery-kit-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an6179-how-to-integrate-the-stl-firmware-into-a-time-critical-user-application-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an6127-getting-started-with-stm32h7rx7sx-mcus-in-stm32cubeide-stmicroelectronics.pdf

Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an6265-getting-started-with-stm32n6-mcus-in-stm32cubeide-stmicroelectronics.pdf
Errata Sheets	https://www.st.com/resource/en/errata_sheet/es0431-stm32g431xx441xx-device-errata-stmicroelectronics.pdf
Datasheet	https://www.st.com/resource/en/datasheet/dm00507199.pdf
Programming Manuals	https://www.st.com/resource/en/programming_manual/pm0214-stm32-cortexm4-mcus-and-mpus-programming-manual-stmicroelectronics.pdf
Reference Manuals	https://www.st.com/resource/en/reference_manual/rm0440-stm32g4-series-advanced-armbased-32bit-mcus-stmicroelectronics.pdf
Technical Notes & Articles	https://www.st.com/resource/en/technical_note/tn1163-description-of-wlcsp-for-microcontrollers-and-recommendations-for-its-use-stmicroelectronics.pdf
Technical Notes & Articles	https://www.st.com/resource/en/technical_note/tn1204-tape-and-reel-shipping-media-for-stm32-microcontrollers-in-bga-packages-stmicroelectronics.pdf
Technical Notes & Articles	https://www.st.com/resource/en/technical_note/tn1205-tape-and-reel-shipping-media-for-stm8-and-stm32-microcontrollers-in-fpn-packages-stmicroelectronics.pdf
Technical Notes & Articles	https://www.st.com/resource/en/technical_note/tn1206-tape-and-reel-shipping-media-for-stm8-and-stm32-microcontrollers-in-qfp-packages-stmicroelectronics.pdf
Technical Notes & Articles	https://www.st.com/resource/en/technical_note/tn1207-tape-and-reel-shipping-media-for-stm8-and-stm32-microcontrollers-in-so-packages-stmicroelectronics.pdf
Technical Notes & Articles	https://www.st.com/resource/en/technical_note/tn1208-tape-and-reel-shipping-media-for-stm8-and-stm32-microcontrollers-in-tssop-and-ssop-packages-stmicroelectronics.pdf
Technical Notes & Articles	https://www.st.com/resource/en/technical_note/tn1433-reference-device-marking-schematics-for-stm32-microcontrollers-and-microprocessors-stmicroelectronics.pdf
User Manuals	https://www.st.com/resource/en/user_manual/um3167-stm32g4-series-ulcsaiec-607301603351-selftest-library-user-guide-stmicroelectronics.pdf